

MIXING DEVICE FOR TWO-PHASE CONCURRENT VESSELS

ABSTRACT OF THE DISCLOSURE

In a vertical reactor vessel through which vapor and liquid flow concurrently, the fluids pass vertically through a horizontal mixing box having internal flow baffles that form at least one mixing orifice through which the process stream flows at high velocity. In the mixing orifices the liquid is dispersed to obtain a large area for inter-phase heat and mass transfer. Each mixing orifice is followed by structure that divides the process stream into two lower velocity streams, whereby turbulent flow conditions are generated, and wherein hold-up time is provided to allow for heat and mass transfer. The fluids exit the mixing box through an outlet opening in a bottom wall of the mixing box. An impingement plate is located below this outlet opening to spread the liquid and decrease the velocity of the exiting jet. The outlet stream from the mixer is equilibrated regarding temperature and chemical composition.